

REMARKS/ARGUMENTS

Favorable reconsideration of this application in light of the above amendments and following remarks and discussion is respectfully requested.

Claims 16-24 are pending in this application. By this amendment, Claims 16, 20 and 22-23 are amended; Claim 24 is added; and no claims are cancelled herewith. It is respectfully submitted that no new matter is added by this amendment.

In the outstanding Office Action, Claim 22 was rejected under 35 U.S.C. § 112, second paragraph for being indefinite; Claims 16, 17 and 20-23 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,192,827 to Welch in view of JP 11-037315 to Osaka; Claim 18 was rejected under 35 U.S.C. § 103(a) as unpatentable over Welch, Osaka and further in view of U.S. Patent No. 5,242,538 to Hamrah; and Claim 19 was rejected under 35 U.S.C. § 103(a) as unpatentable over Welch, Osaka, and further in view of U.S. Patent No. 5,788,799 to Steger.

The Office Action indicates that Claim 22 is rejected under 35 U.S.C. § 112, second paragraph for recitation of “the steps.” However, Applicants submit that Office Action should have indicated Claim 23 instead of Claim 22. Accordingly, Claim 23 is amended by the present amendment to clarify the features recited therein. Withdrawal of the rejection under 35 U.S.C. § 112, second paragraph is respectfully requested.

With respect to the rejection of the claims under 35 U.S.C. § 103, those rejections are respectfully traversed. Applicants submit that the applied art does not teach or suggest a deposit shield and a shutter having a similar curved inner surface facing the vacuum processing chamber with a notch portion of the deposit shield and an end surface of the shutter having similar shapes and formed to face a gate via which the substrate to be processed is loaded or unloaded, wherein when the end surface is fitted to the notch portion, the curved inner surface of the shutter and deposit shield are formed on a same plane, as

recited in Claim 16. In accordance with the claimed features, a uniformity in density of plasma generated in the plasma processing is maintained.

Instead, Welch best shows in Fig. 10, a large gap exists between the liner wall portions 94 and 96 and the door 60. That is, a large gap exists between the door and the inner surfaces that face the interior of the processing chamber. Therefore, when the door 60 is in the open position as shown in Fig. 9 or in the closed position shown in Fig. 10, an inner surface of the door 60 and inner surfaces of portions 94 and 96 are not formed on the same plane as set forth in the claimed invention. The deposit shield of one or more examples of the present invention has such a structure that when the shutter is closed to be fitted with the notch portion of the deposit shield, minimal irregularity is made in the inner wall surface of the deposit shield, creating a smooth plane, as best shown in Figs. 8B and 9. A function of the deposit shield is to inhibit the irregularity on the surface to be exposed to plasma, and thus the density of plasma is made uniform. As such, Claim 16 recites that when the end surface of the shutter is fitted to the notch portion of the deposit shield, the similar curved inner surfaces of the shutter and deposit shield are formed on a same plane. This feature is not taught or suggested in the applied art as clearly shown in for example Fig. 10 of Welch. Osaka does not make up for the deficiencies of Welch discussed above.

Further, the applied art does not teach or suggest a cut end portion of the notch portion and the end surface of the shutter facing the notch portion have respective L-shaped step portions which are fitted to each other, as recited in Claim 20. Please see Fig. 9 of the present specification. Claim 20 further recites that the portion of the cut end L-shaped formed adjacent the vacuum processing chamber extends further towards the shutter than the other portion of the cut end L-shape formed adjacent a plasma processing chamber. Conversely, the portion of the shutter L-shaped step formed adjacent the plasma processing chamber extends further towards the deposit shield cut end portion than the other portion of

the end face formed adjacent the vacuum processing chamber. Again, Fig. 9 clearly shows the features of Claim 20 discussed above. As shown in Fig. 9 and as claimed, the end surfaces of the deposit shield and shutter are the portions that are formed in the shape of the L. As claimed, these L-shaped portions that face a gate via which the substrate to be processed is loaded or unloaded. Additionally, due to the L-shaped portions, this shape prevents metal particles generated from the spiral seal from dispersing to the processing area. The above-described advantageous effect of the present invention cannot be obtained even if the applied art is combined together.

Further, Claim 20 recites that when the shutter and notch are fitted, at least the spiral seal of the shutter is brought into contact with the end face of the notch portion. In this way, plasma generated in the processing chamber is prevented from leaking between the notch portion and the end face of the shutter. The spiral seal functions as an elastic member used when the shutter is opened or closed. As such, the involved members are connected to each other in an electrically uniform fashion to inhibit the leakage of plasma.

For at least the reasons set forth above, withdrawal of the rejection of the claims under 35 U.S.C. § 103(a) is respectfully submitted.

Consequently, for the reasons discussed in detail above, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal allowance. Therefore, a Notice of Allowance is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact the undersigned representative at the below listed telephone number.

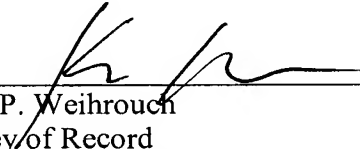
Respectfully submitted,

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